What is claimed is:

1. An isolated polynucleotide comprising a polynucleotide sequence selected from the group consisting of:

(a) a polynucleotide having at least a 70% identity to a polynucleotide encoding a polypeptide comprising the amino acid sequence of SEQ ID NO:2;

(b) a polynucleotide having at least a 70% identity to a polynucleotide encoding the same mature polypeptide expressed by the aroA gene contained in the *Streptococcus pneumoniae* of the deposited strain;

(c) a polynucleotide encoding a polypeptide comprising an amino acid sequence which is at least 70% identical to the amino acid sequence of SEQ ID NO:2;

(d) a polynucleotide which is complementary to the polynucleotide of (a), (b) or (c); and

(e) a polynucleotide comprising at least 15 sequential bases of the polynucleotide of (a), (b), (c) or (d).

2. The polynucleotide of Claim 1 wherein the polynucleotide is DNA.

3. The polynucleotide of Claim 1 wherein the polynucleotide is RNA.

4. The polynucleotide of Claim 2 comprising the nucleic acid sequence set forth in SEQ ID NO:1.

5. The polynucleotide of Claim 2 comprising nucleotide 1 to 1281 set forth in SEQ ID NO:1.

6. The polynucleotide of Claim 2 which encodes a polypeptide comprising the amino acid sequence of SEQ ID NO:2.

7. A vector comprising the polynucleotide of Claim 1.

8. A host cell comprising the vector of Claim 7.

9. A process for producing a polypeptide comprising: expressing from the host cell of Claim 8 a polypeptide encoded by said DNA.

10. A process for producing a aroA polypeptide or fragment comprising culturing a host of claim 8 under conditions sufficient for the production of said polypeptide or fragment.

11. A polypeptide comprising an amino acid sequence which is at least 70% identical to the amino acid sequence of SEQ ID NO:2.

12. A polypeptide comprising an amino acid sequence as set forth in SEQ ID NO:2.

13. An antibody against the polypeptide of claim 11.

14. An antagonist which inhibits the activity or expression of the polypeptide of claim 11.

15. A method for the treatment of an individual in need of aroA polypeptide comprising: administering to the individual a therapeutically effective amount of the polypeptide of claim 11.

16. A method for the treatment of an individual having need to inhibit aroA polypeptide comprising: administering to the individual a therapeutically effective amount of the antagonist of Claim 14.

17. A process for diagnosing a disease related to expression or activity of the polypeptide of claim 11 in an individual comprising:

(a) determining a nucleic acid sequence encoding said polypeptide, and/or

(b) analyzing for the presence or amount of said polypeptide in a sample derived from the individual.

18. A method for identifying compounds which interact with and inhibit or activate an activity of the polypeptide of claim 11 comprising:

contacting a composition comprising the polypeptide with the compound to be screened under conditions to permit interaction between the compound and the polypeptide to assess the interaction of a compound, such interaction being associated with a second component capable of providing a detectable signal in response to the interaction of the polypeptide with the compound;

and determining whether the compound interacts with and activates or inhibits an activity of the polypeptide by detecting the presence or absence of a signal generated from the interaction of the compound with the polypeptide.

19. A method for inducing an immunological response in a mammal which comprises inoculating the mammal with aroA polypeptide of claim 11, or a fragment or variant thereof, adequate to produce antibody and/or T cell immune response to protect said animal from disease.

20. A method of inducing immunological response in a mammal which comprises delivering a nucleic acid vector to direct expression of aroA polypeptide of claim 11, or fragment or a variant thereof, for expressing said aroA polypeptide, or a fragment or a variant thereof *in vivo* in order to induce an immunological response to produce antibody and/ or T cell immune response to protect said animal from disease.

21. An antagonist that inhibits or an agonist that activates an activity a polypeptide selected from the group consisting of: a polypeptide comprising an amino acid sequence which is at least 90% identical to the amino acid sequence of SEQ ID NO:2 or 4, and a polypeptide comprising an amino acid sequence as set forth in SEQ ID NO:2 or 4, wherein said activity is selected from the group consisting of:

synthesis of p-aminobenzoate,

synthesis of ubiquinone,

transformation of phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P) to EPSP and inorganic phosphate (Pi),

transformation of EPSP and inorganic phosphate (Pi) to phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P),

binding of AroA and phospho(enol)pyruvate,

binding of AroA to phospho(enol)pyruvate-pyruvate kinase complex,

binding of AroA and phospho(enol)pyruvate-lactacte dehydrogenase complex,

binding of AroA and shikimate 3-phosphate,

competitive inhibition of the forward reaction of AroA by glyphosate versus phospho(enol)pyruvate,

uncompetitive inhibition of the forward reaction of AroA by glyphosate versus shikimate 3-phosphate,

competitive inhibition of the forward reaction of AroA by EPSP versus phospho(enol)pyruvate,

competitive inhibition of the forward reaction of AroA by EPSP versus shikimate 3-phosphate,

uncompetitive inhibition of the reverse reaction of AroA by glyphosate versus EPSP,

noncompetitive inhibition of the reverse reaction of AroA by glyphosate versus Pi,

competitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus EPSP, and

uncompetitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus Pi.

22. A method for the treatment of an individual having need to inhibit or activate AroA polypeptide comprising the steps of: administering to the individual a antibacterially effective amount of an antagonist that inhibits or an agonist that activates an activity of a polypeptide selected from the group consisting of: a polypeptide comprising an amino acid

sequence which is at least 90% identical to the amino acid sequence of SEQ ID NO:2 or 4, and a polypeptide comprising an amino acid sequence as set forth in SEQ ID NO:2 or 4, wherein said activity is selected from the group consisting of:

synthesis of p-aminobenzoate,

synthesis of ubiquinone,

transformation of phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P) to EPSP and inorganic phosphate (Pi),

transformation of EPSP and inorganic phosphate (Pi) to phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P),

binding of AroA and phospho(enol)pyruvate,

binding of AroA to phospho(enol)pyruvate-pyruvate kinase complex,

binding of AroA and phospho(enol)pyruvate-lactacte dehydrogenase complex,

binding of AroA and shikimate 3-phosphatecompetitive inhibition of the forward reaction of AroA by glyphosate versus phospho(enol)pyruvate,

uncompetitive inhibition of the forward reaction of AroA by glyphosate versus shikimate 3-phosphate,

competitive inhibition of the forward reaction of AroA by EPSP versus phospho(enol)pyruvate,

competitive inhibition of the forward reaction of AroA by EPSP versus shikimate 3-phosphate,

uncompetitive inhibition of the reverse reaction of AroA by glyphosate versus EPSP,

noncompetitive inhibition of the reverse reaction of AroA by glyphosate versus Pi,

competitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus EPSP, and

uncompetitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus Pi.

23. A method for the treatment of an individual infected with a bacteria comprising the steps of administering to the individual a antibacterially effective amount of an antagonist that inhibits or an agonist that activates an activity of a polypeptide selected from the group consisting of: a polypeptide comprising an amino acid sequence which is at least 90% identical to the amino acid sequence of SEQ ID NO:2 or 4, and a polypeptide comprising an amino acid sequence as set forth in SEQ ID NO:2 or 4, wherein said activity is selected from the group consisting of:

synthesis of p-aminobenzoate,

synthesis of ubiquinone,

transformation of phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P) to EPSP and inorganic phosphate (Pi),

transformation of EPSP and inorganic phosphate (Pi) to phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P),

binding of AroA and phospho(enol)pyruvate,

binding of AroA to phospho(enol)pyruvate-pyruvate kinase complex,

binding of AroA and phospho(enol)pyruvate-lactacte dehydrogenase complex,

binding of AroA and shikimate 3-phosphatecompetitive inhibition of the forward reaction of AroA by glyphosate versus phospho(enol)pyruvate,

uncompetitive inhibition of the forward reaction of AroA by glyphosate versus shikimate 3-phosphate,

competitive inhibition of the forward reaction of AroA by EPSP versus phospho(enol)pyruvate,

competitive inhibition of the forward reaction of AroA by EPSP versus shikimate 3-phosphate,

uncompetitive inhibition of the reverse reaction of AroA by glyphosate versus EPSP,

noncompetitive inhibition of the reverse reaction of AroA by glyphosate versus Pi,

competitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus EPSP, and

uncompetitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus Pi.

24. The method of claim 23 wherein said bacteria is selected from the group consisting of a member of the genus *Staphylococcus*, *Staphylococcus aureus*, a member of the genus *Streptococcus*, and *Streptococcus pneumoniae*.

25. A method for the treatment of an individual having need to inhibit or activate AroA polypeptide comprising the steps of administering to the individual a antibacterially effective amount of an antagonist that inhibits or an agoinist that activates an activity of AroA selected from the group consisting of:

synthesis of p-aminobenzoate,

synthesis of ubiquinone,

transformation of phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P) to EPSP and inorganic phosphate (Pi),

transformation of EPSP and inorganic phosphate (Pi) to phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P),

binding of AroA and phospho(enol)pyruvate,

binding of AroA to phospho(enol)pyruvate-pyruvate kinase complex,

binding of AroA and phospho(enol)pyruvate-lactacte dehydrogenase complex,

binding of AroA and shikimate 3-phosphatecompetitive inhibition of the forward reaction of AroA by glyphosate versus phospho(enol)pyruvate,

uncompetitive inhibition of the forward reaction of AroA by glyphosate versus shikimate 3-phosphate,

competitive inhibition of the forward reaction of AroA by EPSP versus phospho(enol)pyruvate,

competitive inhibition of the forward reaction of AroA by EPSP versus shikimate 3-phosphate,

uncompetitive inhibition of the reverse reaction of AroA by glyphosate versus EPSP,

noncompetitive inhibition of the reverse reaction of AroA by glyphosate versus Pi,

competitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus EPSP, and

uncompetitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus Pi.

26. A method for the treatment of an individual infected with a bacteria comprising the steps of administering to the individual a antibacterially effective amount of an antagonist that inhibits or an agonist that activates that activates an activity of AroA selected from the group consisting of:

synthesis of p-aminobenzoate,

synthesis of ubiquinone,

transformation of phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P) to EPSP and inorganic phosphate (Pi),

transformation of EPSP and inorganic phosphate (Pi) to phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P),

binding of AroA and phospho(enol)pyruvate,

binding of AroA to phospho(enol)pyruvate-pyruvate kinase complex,

binding of AroA and phospho(enol)pyruvate-lactacte dehydrogenase complex,

binding of AroA and shikimate 3-phosphatecompetitive inhibition of the forward reaction of AroA by glyphosate versus phospho(enol)pyruvate,

uncompetitive inhibition of the forward reaction of AroA by glyphosate versus shikimate 3-phosphate,

competitive inhibition of the forward reaction of AroA by EPSP versus phospho(enol)pyruvate,

competitive inhibition of the forward reaction of AroA by EPSP versus shikimate 3-phosphate,

uncompetitive inhibition of the reverse reaction of AroA by glyphosate versus EPSP,

noncompetitive inhibition of the reverse reaction of AroA by glyphosate versus Pi,

competitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus EPSP, and

uncompetitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus Pi.

27. The method of claim 26 wherein said bacteria is selected from the group consisting of: a member of the genus Staphylococcus, Staphylococcus aureus, a member of the genus Streptococcus, and Streptococcus pneumoniae.

28. A method for the treatment of an individual infected by a bacteria comprising the steps of administering to the individual an antibacterially effective amount of a compound that is a competitive inhibitor of shikimate-3-phosphate substrate utilization by AroA.

29. The method of claim 28 wherein said bacteria is selected from the group consisting of: a member of the genus *Staphylococcus*, *Staphylococcus aureus*, a member of the genus *Streptococcus*, and *Streptococcus pneumoniae*.

30. The method fo claim 28 wherein said compound binds to or interacts with the active site of AroA or interacts with shikimate-3-phosphate or interferes with the binding of shikimate-3-phosphate.

31. A method for the treatment of an individual infected by *Streptococcus pneumoniae* comprising the steps of administering to the individual a antibacterially effective amount of an antagonist that inhibits or anagonist that activates an activity of *Streptococcus pneumoniae* AroA selected from the group consisting of:

synthesis of p-aminobenzoate,

synthesis of ubiquinone,

transformation of phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P) to EPSP and inorganic phosphate (Pi),

transformation of EPSP and inorganic phosphate (Pi) to phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P),

binding of AroA and phospho(enol)pyruvate,

binding of AroA to phospho(enol)pyruvate-pyruvate kinase complex,

binding of AroA and phospho(enol)pyruvate-lactacte dehydrogenase complex,

binding of AroA and shikimate 3-phosphatecompetitive inhibition of the forward reaction of AroA by glyphosate versus phospho(enol)pyruvate,

uncompetitive inhibition of the forward reaction of AroA by glyphosate versus shikimate 3-phosphate,

competitive inhibition of the forward reaction of AroA by EPSP versus phospho(enol)pyruvate,

competitive inhibition of the forward reaction of AroA by EPSP versus shikimate 3-phosphate,

uncompetitive inhibition of the reverse reaction of AroA by glyphosate versus EPSP,

noncompetitive inhibition of the reverse reaction of AroA by glyphosate versus Pi,

competitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus EPSP, and

uncompetitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus Pi.

32. An antagonist that inhibits an activity of a polypeptide selected from the group consisting of: a polypeptide comprising an amino acid sequence which is at least 90% identical to the amino acid sequence of SEQ ID NO:2 or 4, and a polypeptide comprising an amino acid sequence as set forth in SEQ ID NO:2 or 4, , wherein said activity is selected from the group consisting of:

synthesis of p-aminobenzoate,

synthesis of ubiquinone,

transformation of phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P) to EPSP and inorganic phosphate (Pi),

transformation of EPSP and inorganic phosphate (Pi) to phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P),

binding of AroA and phospho(enol)pyruvate,

binding of AroA to phospho(enol)pyruvate-pyruvate kinase complex,

binding of AroA and phospho(enol)pyruvate-lactacte dehydrogenase complex,

binding of AroA and shikimate 3-phosphatecompetitive inhibition of the forward reaction of AroA by glyphosate versus phospho(enol)pyruvate,

uncompetitive inhibition of the forward reaction of AroA by glyphosate versus shikimate 3-phosphate,

competitive inhibition of the forward reaction of AroA by EPSP versus phospho(enol)pyruvate,

competitive inhibition of the forward reaction of AroA by EPSP versus shikimate 3-phosphate,

uncompetitive inhibition of the reverse reaction of AroA by glyphosate versus EPSP,

noncompetitive inhibition of the reverse reaction of AroA by glyphosate versus Pi,

competitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus EPSP, and

uncompetitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus Pi.

33. A method for the treatment of an individual having need to inhibit AroA polypeptide comprising the steps of administering to the individual a antibacterially effective amount of an antagonist that inhibits an activity of a polypeptide selected from the group consisting of: a polypeptide comprising an amino acid sequence which is at least 90% identical to the amino acid sequence of SEQ ID NO:2 or 4, and a polypeptide comprising an amino acid sequence as set forth in SEQ ID NO:2 or 4, , wherein said activity is selected from the group consisting of:

synthesis of p-aminobenzoate,

synthesis of ubiquinone,

transformation of phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P) to EPSP and inorganic phosphate (Pi),

transformation of EPSP and inorganic phosphate (Pi) to phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P),

binding of AroA and phospho(enol)pyruvate,

binding of AroA to phospho(enol)pyruvate-pyruvate kinase complex,

binding of AroA and phospho(enol)pyruvate-lactacte dehydrogenase complex,

binding of AroA and shikimate 3-phosphatecompetitive inhibition of the forward reaction of AroA by glyphosate versus phospho(enol)pyruvate,

uncompetitive inhibition of the forward reaction of AroA by glyphosate versus shikimate 3-phosphate,

competitive inhibition of the forward reaction of AroA by EPSP versus phospho(enol)pyruvate,

competitive inhibition of the forward reaction of AroA by EPSP versus shikimate 3-phosphate,

uncompetitive inhibition of the reverse reaction of AroA by glyphosate versus EPSP,

noncompetitive inhibition of the reverse reaction of AroA by glyphosate versus Pi,

competitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus EPSP, and

uncompetitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus Pi.

36. A method for inhibiting an activity of AroA polypeptide comprising the steps of contacting a composition comprising said polypeptide with an effective amount of an antagonist that inhibits an activbity of AroA, wherein said activity is selected from the group consisting of:

synthesis of p-aminobenzoate,

synthesis of ubiquinone,

transformation of phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P) to EPSP and inorganic phosphate (Pi),

transformation of EPSP and inorganic phosphate (Pi) to phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P),

binding of AroA and phospho(enol)pyruvate,

binding of AroA to phospho(enol)pyruvate-pyruvate kinase complex,

binding of AroA and phospho(enol)pyruvate-lactacte dehydrogenase complex,

binding of AroA and shikimate 3-phosphatecompetitive inhibition of the forward reaction of AroA by glyphosate versus phospho(enol)pyruvate,

uncompetitive inhibition of the forward reaction of AroA by glyphosate versus shikimate 3-phosphate,

competitive inhibition of the forward reaction of AroA by EPSP versus phospho(enol)pyruvate,

competitive inhibition of the forward reaction of AroA by EPSP versus shikimate 3-phosphate,

uncompetitive inhibition of the reverse reaction of AroA by glyphosate versus EPSP,

noncompetitive inhibition of the reverse reaction of AroA by glyphosate versus Pi,

competitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus EPSP, and

uncompetitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus Pi. a conversion of acetyl-CoA to product or a conversion of malonyl-ACP to product.

~~37~~. A method for inhibiting an activity of AroA, wherein said activity is selected from the group consisting of:

synthesis of p-aminobenzoate,

synthesis of ubiquinone,

transformation of phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P) to EPSP and inorganic phosphate (Pi),

transformation of EPSP and inorganic phosphate (Pi) to phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P),

binding of AroA and phospho(enol)pyruvate,

binding of AroA to phospho(enol)pyruvate-pyruvate kinase complex,

binding of AroA and phospho(enol)pyruvate-lactacte dehydrogenase complex,

binding of AroA and shikimate 3-phosphatecompetitive inhibition of the forward reaction of AroA by glyphosate versus phospho(enol)pyruvate,

uncompetitive inhibition of the forward reaction of AroA by glyphosate versus shikimate 3-phosphate,

competitive inhibition of the forward reaction of AroA by EPSP versus phospho(enol)pyruvate,

competitive inhibition of the forward reaction of AroA by EPSP versus shikimate 3-phosphate,

uncompetitive inhibition of the reverse reaction of AroA by glyphosate versus EPSP,

noncompetitive inhibition of the reverse reaction of AroA by glyphosate versus Pi,

competitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus EPSP, and

uncompetitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus Pi. a conversion of acetyl-CoA to product or a conversion of malonyl-ACP to product,

comprising the steps of contacting a composition comprising bacteria with a compound that inhibits said activity for an effective time to cause killing or slowing or growth of said bacteria.

~~38~~. The method of claim 37 wherein said bacteria is selected from the group consisting of: a member of the genus *Staphylococcus*, *Staphylococcus aureus*, a member of the genus *Streptococcus*, and *Streptococcus pneumoniae*.

~~39~~. A method for inhibiting a growth of bacteria comprising the steps of contacting a composition comprising bacteria with an antibacterially effective amount of an antagonist that inhibits an activity of AroA, wherein said activity is selected from the group consisting of:

synthesis of p-aminobenzoate,

synthesis of ubiquinone,

transformation of phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P) to EPSP and inorganic phosphate (Pi),

transformation of EPSP and inorganic phosphate (Pi) to phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P),

binding of AroA and phospho(enol)pyruvate,

binding of AroA to phospho(enol)pyruvate-pyruvate kinase complex,

binding of AroA and phospho(enol)pyruvate-lactacte dehydrogenase complex,

binding of AroA and shikimate 3-phosphatecompetitive inhibition of the forward reaction of AroA by glyphosate versus phospho(enol)pyruvate,

uncompetitive inhibition of the forward reaction of AroA by glyphosate versus shikimate 3-phosphate,

competitive inhibition of the forward reaction of AroA by EPSP versus phospho(enol)pyruvate,

competitive inhibition of the forward reaction of AroA by EPSP versus shikimate 3-phosphate,

uncompetitive inhibition of the reverse reaction of AroA by glyphosate versus EPSP,

noncompetitive inhibition of the reverse reaction of AroA by glyphosate versus Pi,

competitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus EPSP, and

uncompetitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus Pi. a conversion of acetyl-CoA to product or a conversion of malonyl-ACP to product.

40. The method of claim 39 wherein said bacteria is selected from the group consisting of: a member of the genus *Staphylococcus, Staphylococcus aureus*, a member of the genus *Streptococcus*, and *Streptococcus pneumoniae*.

41. A method for inhibiting a AroA polypeptide comprising the steps of contacting a composition comprising bacteria with an antibacterially effective amount of an antagonist that inhibits an activity of AroA, wherein said activity is selected from the group consisting of:

synthesis of p-aminobenzoate,

synthesis of ubiquinone,

transformation of phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P) to EPSP and inorganic phosphate (Pi),

transformation of EPSP and inorganic phosphate (Pi) to phospho(enol)pyruvate (PEP) and shikimate 3-phosphate (S3P),

binding of AroA and phospho(enol)pyruvate,

binding of AroA to phospho(enol)pyruvate-pyruvate kinase complex,

binding of AroA and phospho(enol)pyruvate-lactacte dehydrogenase complex,

binding of AroA and shikimate 3-phosphatecompetitive inhibition of the forward reaction of AroA by glyphosate versus phospho(enol)pyruvate,

uncompetitive inhibition of the forward reaction of AroA by glyphosate versus shikimate 3-phosphate,

competitive inhibition of the forward reaction of AroA by EPSP versus phospho(enol)pyruvate,

competitive inhibition of the forward reaction of AroA by EPSP versus shikimate 3-phosphate,

uncompetitive inhibition of the reverse reaction of AroA by glyphosate versus EPSP,

noncompetitive inhibition of the reverse reaction of AroA by glyphosate versus Pi,

competitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus EPSP, and

uncompetitive inhibition of the reverse reaction of AroA by shikimate 3-phosphate versus Pi. a conversion of acetyl-CoA to product or a conversion of malonyl-ACP to product.

42. The method of claim 41 wherein said bacteria is selected from the group consisting of: a member of the genus *Staphylococcus*, *Staphylococcus aureus*, a member of the genus *Streptococcus*, and *Streptococcus pneumoniae*.